Feeding Robot Using Image Processing Technology for Parkinson Patients

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This project is intended for helping Parkinson patients have meals more easily by using a feeding robot that applies image processing and voice recognition technology in its control method. Parkinson patients tend to have the symptoms such as stiff muscle, trembling hands, and slow movement, which causes difficulties in the patients' daily lives, especially in eating. The disease becomes more serious according to the patients' age and the time the patients having it. The disease has 5 stages. From stage 3, the patients find it hard to use their hands. This robot helps the patients able to have meals without dependence on any support from others. They just open their mouth to command to be fed. To be able to select and pick up foods, they just move their eyes or say dish 1, dish 2, dish 3, or dish 4. The robot consists of 2 main parts: hardware and software. The hardware includes an arm with 5 degrees of freedom, a fan-shaped food tray with 4 plates, a normal camera, an embedded computer, and servo motors. The software consists of the programs to control motors, to read gestures of eyes and mouth, for communication between the embedded computer and Arduino circuit by using Python programming language. This robot was tested with 40 Parkinson patients in 2 hospitals in different conditions and more than 85% of these participants said they liked the product, 95% wished to have it. The robot is more effective with image processing technology than with voice recognition.

Awards Won:

Third Award of $1,000